



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2020-0785; Product Identifier 2020-NM-063-AD; Amendment 39-21477; AD 2021-06-10]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for all The Boeing Company Model 747 series airplanes and Model 767 series airplanes. This AD was prompted by a report of an un-commanded fuel transfer between the main and center fuel tanks. This AD prohibits operation of an airplane with any inoperative refuel valve (fueling shut-off valve) failed in the open position. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES:

Examining the AD Docket

You may examine the AD docket on the Internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-0785; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket

Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Douglas Mansell, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98190; phone and fax: 206-231-3875; email: douglas.e.mansell@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to all The Boeing Company Model 747 series airplanes and Model 767 series airplanes. The NPRM published in the *Federal Register* on September 9, 2020 (85 FR 55622). The NPRM was prompted by a report of an un-commanded fuel transfer between the main and center fuel tanks. The NPRM proposed to prohibit operation of an airplane with any inoperative refuel valve (fueling shut-off valve) failed in the open position.

The FAA is issuing this AD to address multiple refuel valves failed in the “open” position via Master Minimum Equipment List (MMEL) dispatch allowance, which allows un-commanded fuel transfer between fuel tanks. This condition could result in a fuel exhaustion event.

Comments

The FAA gave the public the opportunity to participate in developing this final rule. The following presents the comments received on the NPRM and the FAA’s response to each comment.

Support for the NPRM

United Airlines had no objection to the NPRM. Another commenter stated that the NPRM was justified.

Request to Identify Proposed AD as Interim Action

Boeing requested that the proposed AD be identified as interim action because it is working on an updated MMEL to provide modified dispatch relief.

The FAA agrees with the commenter's request for the reason provided by the commenter. The FAA has revised the preamble in this final rule to identify this AD as interim action.

Request to Clarify Certain Terminology

Boeing requested that throughout the proposed AD the word "secured" be changed to "failed" when referring to the fuel shutoff valves. The commenter explained that the Minimum Equipment List (MEL) does not direct operators to secure the fuel shutoff valve open; the MEL states that operators are allowed to operate (dispatch) an airplane with a valve failed (inoperative) in the open position.

The FAA agrees with the commenter's request for the reasons provided by the commenter. The FAA has accordingly revised the description of the unsafe condition and AD requirements in the SUMMARY and Background sections of this final rule, and in paragraphs (e) and (g) of this AD.

Request for Clarification Regarding Revisions to MMEL Items for Model 747SP Series Airplanes

A commenter requested clarification regarding revisions to MMEL items for Model 747SP series airplanes. The commenter stated the company he is affiliated with operates two Model 747SP series airplanes and asked if the final instruction would require eliminating ATA 28-20 2) through 6) from its MEL, or if those sections would be revised with different maintenance instructions, which would allow dispatching an airplane with only one inoperative refueling valve deactivated in the open position, or if there would be a revision to those sections with different maintenance instructions allowing dispatching an airplane with inoperative refueling valves deactivated in the

closed position (for example, if the refueling valves could be manually opened on the ground for re-fueling and then closed for flight if only the valve's actuator is defective).

The FAA provides the following explanations to the commenter's questions. This AD eliminates the relief provided by the dispatch provisions of ATA 28-20 2), 3), 4), 5), and 6) from the Boeing 747 B-747-100/200/300/SP SERIES MMEL. This AD therefore prohibits dispatch of an airplane with any of the subject refuel valves inoperative in the open position, regardless of the existence of any MMEL provisions. If the MMEL items are revised in the future, the FAA might issue global AMOCs to provide relief for operation under specified conditions. This AD does not change the MMEL dispatch provisions for refuel valves inoperative in the closed position.

Request to Reduce the Compliance Time

The Air Line Pilots Association, International (ALPA) requested that the compliance time specified in the proposed AD be reduced from 60 days after the effective date of the AD to 15 days. The commenter stated that operators have had sufficient time from the publication date of the proposed AD (September 9, 2020) until the publication date of the final rule to address the prohibition of dispatching airplanes with more than one affected refuel valve inoperative.

The FAA disagrees with the commenter's request. After considering all of the available information, the FAA determined that the compliance time, as proposed, represents an appropriate interval of time for operators to comply with the AD, and still maintain an adequate level of safety. In developing an appropriate compliance time, the FAA considered the safety implications of operating an airplane with any inoperative refuel valve. In addition, reducing the compliance time of the proposed AD would necessitate (under the provisions of the Administrative Procedure Act) reissuing the notice, reopening the period for public comment, considering additional comments subsequently received, and eventually issuing a final rule. That procedure could add

unwarranted time to the rulemaking process. In light of this, and in consideration of the amount of time that has already elapsed since issuance of the original notice, the FAA determined that further delay of this AD is not appropriate. However, if additional data are presented that would justify a shorter compliance time, the FAA may consider further rulemaking on this issue. The FAA has not revised this AD in regard to this issue.

Request to Include MMEL Item for Model 747-8 Passenger Airplanes

Boeing and AMES Sarl (CAMO) requested that MMEL Item 28-21-02-01A, “Refuel Valves,” which applies to passenger airplanes, be included in paragraph (h)(4) of the proposed AD. The commenters noted that in paragraph (h)(4) of the proposed AD, only MMEL Item 28-21-01-01A, “Refuel Valves,” is specified, and that MMEL item is applicable only to Model 747-8F airplanes, which are freighter airplanes.

The FAA agrees with the commenters’ requests for the reasons provided by the commenters and has revised paragraph (h)(4) of this AD accordingly.

Request to Remove Reference to MMEL Items for Model 767-2C Series Airplanes

Boeing requested that MMEL items referring to Model 767-2C series airplanes be removed from paragraph (h)(6) of the proposed AD because an FAA-approved MMEL document does not exist for this model. The commenter explained that only a Dispatch Deviation Guide (DDG) has been issued for Model 767-2C series airplanes and that the MMEL items referenced in paragraphs (h)(6)(i) and (ii) of the proposed AD are found only in the DDG and are not public documents; therefore it is not appropriate to reference these MMEL items in the proposed AD.

The FAA agrees with the commenter’s request for the reasons provided by the commenter. The FAA has removed paragraph (h)(6) of this AD because there is no published MMEL for Model 767-2C series airplanes.

Request to Remove References to Model KC-46A Airplanes

Boeing requested that all text referring to Model KC-46A airplanes be removed from the NPRM. The commenter explained that for type certification purposes, Model KC-46A airplanes are covered under the type certificate for Model 767-2C series airplanes.

The FAA agrees with the commenter's request for the reason provided by the commenter. As stated previously, paragraph (h)(6) of the proposed AD, which provided MMEL information for Model 767-2C airplanes, has been removed from this AD.

Request for Clarification of Affected Fuel Tanks in Paragraph (g) of the Proposed AD

Boeing requested that paragraph (g) of the proposed AD be revised to clarify which fuel tanks are affected. The commenter stated that the identified unsafe condition is not evident when an airplane is operating using the existing DDG and MMEL relief for fuel tanks with refuel valves that are isolated from the main manifold that provides fuel to the wing tanks. The commenter explained that the fuel tanks that are not affected include the auxiliary tanks and the horizontal stabilizer tank on Model 747 series airplanes and the body fuel tanks on Model 767-2C series airplanes.

The FAA agrees with the commenter's request. The FAA has determined that this clarification could reduce confusion among operators regarding which fuel tanks are affected by the unsafe condition identified in this AD. The FAA has revised this final rule to clarify that this AD prohibits operation of an airplane with any inoperative refuel valve (fueling shut-off valve) of "the reserve tank (on Model 747 series airplanes), main tank, or center tank" that has failed in the open position.

Request to Revise Paragraph (g) of the Proposed AD to Prohibit Dispatch if More Than One Refuel Valve is Inoperative

United Parcel Service (UPS Airlines) requested that paragraph (g) of the proposed AD be revised to specify that dispatch of an airplane is allowed if there is only one

inoperative refuel valve. The commenter agreed that if multiple refuel valves were secured in the open position there could be an un-commanded fuel transfer between fuel tanks. The commenter explained that a review of the fuel control systems on its fleet revealed that the fuel transfer would occur only if two valves were open, each in a different tank. The commenter noted that if only one valve was secured (failed) open, fuel could enter the manifold but could not migrate into a different tank. The commenter stated that it had contacted Boeing regarding dispatch of an airplane with one refuel valve secured in the open position and that Boeing stated this provides an acceptable level of safety to the proposed AD. The commenter explained that Boeing is developing substantiating analysis to support dispatch of an airplane with one refuel valve secured in the open position for many of the affected airplane models.

In addition, the commenter requested that the repair category be specified as category B (three day deferral) because the replacement of a refuel valve, which involves fuel tank access and requires specialized training and additional time to properly vent the fuel tanks, would place an undue burden on operators when another acceptable alternative is available.

The FAA does not agree with the commenter's requests. The FAA has determined that the operational limitations imposed by this AD are warranted, and adequately address the unsafe condition. Boeing has not yet finalized or provided the FAA with its substantiating analysis to support dispatch of an airplane with one refuel valve secured in the open position. Boeing has indicated that in the future it might provide updates for the applicable DDG and MMEL for each affected airplane model to provide modified dispatch relief. The FAA has not revised this AD in regard to this issue.

Request to Revise Paragraph (h) of the Proposed AD to Refer to MEL Instead of MMEL

Boeing requested that the header for paragraph (h) in the proposed AD be changed from MMEL Items to MEL Items. The commenter also requested that

paragraphs (h)(1) through (6) be revised to refer to MEL items instead of MMEL items. The commenter stated that these changes would provide clarification that MEL(s) would be updated and the wording would be consistent with that of similar ADs.

The FAA partially agrees with the commenter's requests. The FAA agrees with the commenter's statement that operators will need to update their MELs to comply with the change required by this AD. Because dispatch requirements have changed for the applicable airplane models, the FAA disagrees with removing the reference to the identified MMEL items because this AD does not mandate the actual change to the applicable MMEL. This AD identifies which FAA-approved MMEL items are affected. Operators consult the MMEL requirements when updating the operator's existing FAA-approved MEL. The FAA has revised paragraph (h) of this AD accordingly.

Request to Include Note 2 to Paragraph (h) of the Proposed AD

Boeing requested that Note 2 be added to paragraph (h) of the proposed AD stating that operators must not dispatch an airplane using MMEL Item 28-21-01 with any of the identified valves in the inoperative open condition. The commenter explained that this would prevent dispatch of an airplane with fueling shutoff valves in the inoperative open condition without requiring a reference to a specific chapter of the MMEL.

The FAA disagrees with the commenter's request. Not all affected airplanes have MMEL items in section 28-21. Further, the intent of the commenter's proposed text is adequately addressed in the provisions of paragraph (g) of this AD, which is unchanged from the proposed AD. The FAA has not changed this AD as a result of this comment.

Conclusion

The FAA reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this final rule with the changes described previously and minor editorial changes. The FAA has determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM for addressing the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

The FAA also determined that these changes will not increase the economic burden on any operator or increase the scope of this final rule.

MMEL Revisions

This AD refers to items in Sections 28-20 and 28-21 of the MMEL¹; those items may also be included in an operator's FAA-approved MEL. This AD prohibits operation of the airplane under conditions currently allowed by those items in the MMEL. The FAA plans to revise the MMEL to remove those items in a future revision; operators would then be required to also remove those items from their existing FAA-approved MEL.

Interim Action

The FAA considers this AD interim action. The manufacturer is currently developing an updated MMEL, with substantiation, that would allow limited relief for an inoperative open fuel shutoff valve and mitigate the unsafe condition. Once the updated MMEL is developed, approved, and available, the FAA might consider additional rulemaking.

Costs of Compliance

The FAA estimates that this AD affects 750 airplanes of U.S. registry.

¹ The MMEL items can be found in the applicable FAA-approved MMEL: Boeing 747 B-747-100/200/300/SP SERIES MMEL, Revision 35, dated April 25, 2014; Boeing 747 B-747-400 LCF MMEL, Revision 3, November 7, 2014; Boeing 747 B-747-400, B-747-400D, B-747-400F MMEL, Revision 32, dated December 27, 2018; Boeing 747-8 MMEL, Revision 7, dated August 25, 2017; and Boeing 767 MMEL, Revision 39, dated October 26, 2018; which can be found on the Flight Standards Information Management System (FSIMS) website, <https://fsims.faa.gov/PICResults.aspx?mode=Publication&doctype=MMELByModel>.

The FAA has determined that revising the operator's existing FAA-approved MEL takes an average of 90 work-hours per operator, although the agency recognizes that this number may vary from operator to operator. Since operators typically incorporate MEL changes for their affected fleet(s), the FAA has determined that a per-operator estimate is more accurate than a per-airplane estimate. Therefore, the FAA estimates the average total cost per operator to be \$7,650 (90 work-hours x \$85 per work-hour).

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

(1) Is not a "significant regulatory action" under Executive Order 12866,

(2) Will not affect intrastate aviation in Alaska, and

(3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive:

2021-06-10 The Boeing Company: Amendment 39-21477; Docket

No. FAA-2020-0785; Product Identifier 2020-NM-063-AD.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to all The Boeing Company airplanes, certificated in any category, identified in paragraphs (c)(1) and (2) of this AD.

(1) Model 747-100, -100B, -100B SUD, -200B, -200C, -200F, -300, -400, -400D, -400F, 747SR, 747SP, -8F, and -8 series airplanes.

(2) Model 767-200, -300, -300F, -400ER, and -2C series airplanes.

(d) Subject

Air Transport Association (ATA) of America Code 28, Fuel.

(e) Unsafe Condition

This AD was prompted by a report of an un-commanded fuel transfer between the main and center fuel tanks. The FAA is issuing this AD to address multiple refuel valves failed in the “open” position via Master Minimum Equipment List (MMEL) dispatch allowance, which allows un-commanded fuel transfer between fuel tanks. This condition could result in a fuel exhaustion event.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Conditions for Prohibited Operation

No later than 60 days after the effective date of this AD: Operation of an airplane with any inoperative refuel valve (fueling shut-off valve) of the reserve tank (on Model 747 series airplanes only), main tank, or center tank that has failed in the open position is prohibited.

(h) Minimum Equipment List (MEL) Items

The MMEL items specified in paragraphs (h)(1) through (5) of this AD are affected by this prohibition and therefore may affect the operator’s FAA-approved MEL.

(1) For Model 747-100, -200, and -300 series airplanes: The following “Pressure Fueling System” items.

(i) MMEL Item 28-20 2), “Main Tank 1 and 4 Refueling Valves.”

(ii) MMEL Item 28-20 3), “Main Tank 2 and 3 Refueling Valves.”

(iii) MMEL Item 28-20 4), “Center Tank Refueling Valves.”

(iv) MMEL Item 28-20 5), “Reserve Tank 1 and 4 Refueling Valves.”

(v) MMEL Item 28-20 6), “Reserve Tank 2 and 3 Refueling Valves.”

(2) For Model 747-400LCF series airplanes: MMEL Item 28-21-1 1), “Refuel Valves,” second dispatch case with refueling valves inoperative open.

(3) For Model 747-400 series airplanes: MMEL Item 28-21-1 1), “Refuel Valves,” first dispatch case with refueling valves inoperative open.

(4) For Model 747-8 series airplanes: The following “Refuel Valves” items.

(i) MMEL Item 28-21-01-01-01A, “Refuel Valves.”

(ii) MMEL Item 28-21-01-02-01A, “Refuel Valves.”

(5) For Model 767 series airplanes (except Model 767-2C airplanes, for which there is no published MMEL): MMEL Item 28-21-01-01B, “Fuel Shutoff Valves.”

Note 1 to paragraph (h): The MMEL items specified in paragraph (h) of this AD can be found in the applicable FAA-approved MMEL: Boeing 747 B-747-100/200/300/SP SERIES MMEL, Revision 35, dated April 25, 2014; Boeing 747 B-747-400 LCF MMEL, Revision 3, November 7, 2014; Boeing 747 B-747-400, B-747-400D, B-747-400F MMEL, Revision 32, dated December 27, 2018; Boeing 747-8 MMEL, Revision 7, dated August 25, 2017; and Boeing 767 MMEL, Revision 39, dated October 26, 2018; which can be found on the Flight Standards Information Management System (FSIMS) website, <https://fsims.faa.gov/PICResults.aspx?mode=Publication&doctype=MMELByModel>.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Seattle ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (j) of this AD. Information may be emailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair, modification, or alteration required by this AD if it is approved by The Boeing Company Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO Branch, FAA, to make those findings. To be approved, the repair method, modification deviation, or alteration deviation must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(j) Related Information

For more information about this AD, contact Douglas Mansell, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98190; phone and fax: 206-231-3875; email: douglas.e.mansell@faa.gov.

(k) Material Incorporated by Reference

None.

Issued on March 12, 2021.

Lance T. Gant, Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

[FR Doc. 2021-06023 Filed: 3/23/2021 8:45 am; Publication Date: 3/24/2021]